

Amendment under 37 CFR §1.111
Attorney Docket No.: 052485
Application No.: 10/532,077

REMARKS

Claims 3-9 are pending in the present application. Claims 6 and 8 are withdrawn. Claims 3-5 and 7 are herein amended. Claims 1 and 2 are cancelled. Claim 9 is newly added. No new matter has been entered.

Support for new claim 9 is in the specification at, *e.g.*, page 10, lines 9-10.

Claim Rejections - 35 U.S.C. §§ 102 and 103

Claims 1, 3 and 5 were rejected under 35 U.S.C. § 102(b) as being anticipated by **Xiang** (CN 1146303) as evidenced by **Ross** (Applied and Environmental Microbiology, vol. 67, no. 1, pp 475-80); and claims 1, 2, 4 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over **Xiang** in view of **Okada** (US 5,985,303).

Favorable reconsideration is requested.

Claim 1 has been cancelled and claims 3 and 5 now depend from claim 7. Thus, the remarks below only address the § 103 rejection based on Xiang in view of Okada.

(1) Applicants respectfully submit that it would not have been obvious to one of ordinary skill in the art to combine the teachings of Xiang and Okada.

The Office Action acknowledges that Xiang does not disclose microencapsulation of isothiocyanate ester, and appears to acknowledge that Xiang does not disclose a food storing article carrying a humidity-dependent antibacterial composition. (Office Action, page 6.) The Office Action cites Okada for teaching these features.

Xiang discloses microencapsulation of food products such as natural spice flavoring products used for direct use in cooking for facilitating flavor preservation and providing for convenient use. (Xiang translation, p. 4.) Xiang identifies the problem of loss of purified oil and

its volatile substances (Xiang translation, p. 4), and provides a solution to improve retention rates to as high as 97% such that it has a high storage tolerance (*see, e.g.*, Xiang translation, pp. 5 and 8-12; p. 10, lines 9-11). Thus, Xiang teaches reducing the volatile loss of spice flavoring oil with high retention rates in food products.

Okada discloses the use of isothiocyanate ester in food packaging material. (Col. 1, lines 40-47.) Okada teaches that the isothiocyanate ester must be emanated at a constant rate and teaches the use of a matrix material to entrap isothiocyanate ester by adsorption to achieve that constant rate of emanation as opposed to a quick release of the isothiocyanate ester as in conventional arrangements. (*See* col. 1, lines 47-53 and col. 3, lines 64-67.) Thus, Okada teaches a matrix material to be used with the isothiocyanate ester in food packaging to achieve a constant release of isothiocyanate ester which provides preservation of the food in the food package.

The Office Action takes the position that one of ordinary skill in the art would have been motivated to incorporate allyl isothiocyanate as the oil in the Xiang because allyl isothiocyanate is an oily extract of horseradish or mustard, and Xiang teaches microencapsulation of any spice oil. (Office Action, page 7.) The Office Action further states that one of ordinary skill in the art would have had a reasonable expectation of success in using allyl isothiocyanate in the microencapsulation method of Xiang. However, this conclusion in the Office Action does not take into account what is taught in the references as a whole. “A prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention.” MPEP § 2141.02(VI) citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983).

When viewing the references as a whole, the references teach opposite mechanisms, and thus, it would not have been obvious to one of ordinary skill in the art to combine the teachings as alleged in the Office Action. Xiang discloses reducing volatile loss of spice flavoring oil food product for flavor preservation and the use of microencapsulation to achieve the reduction in volatile loss. (Xiang translation, p. 4.) Okada discloses a food packaging material including isothiocyanate ester which must be released to preserve freshness of food in the food packaging material, and to release the isothiocyanate ester at a constant rate with the use of a matrix material. When viewing Okada as a whole, isothiocyanate ester is not effective for the purpose taught in Okada unless it is released. Thus, one of ordinary skill in the art would not have used isothiocyanate ester in Xiang which teaches preventing release with a high retention rate.

Furthermore, contrary to the statement in the Office Action, one of ordinary skill in the art would not have had a reasonable expectation of success in using allyl isothiocyanate as taught in Okada in the microencapsulation method of Xiang. Since Okada teaches the release of isothiocyanate ester and that it must be released to be effective, one of ordinary skill in the art would not expect successful results of the isothiocyanate ester in Xiang which teaches preventing release.

Therefore, it would not have been obvious to one of ordinary skill in the art to combine the teachings of Xiang and Okada as alleged in the Office Action.

(2) Even if Xiang and Okada can be combined as alleged in the Office Action, the combination would not teach “A humidity-dependent antibacterial food storing article” and “the behavior of release of the antibacterial substance changes depending on humidity ... said volatile oily antibacterial substance is an isothiocyanate ester” as recited in amended claim 7.

The Office Action assumes that the prior art composition has the humidity-dependent release feature, and has shifted the burden to Applicants to demonstrate otherwise. (Office Action, pp. 3-4.)

Xiang discloses microencapsulation of food products such as natural spice flavoring products used for direct use in cooking. (Xiang translation, p. 4.) The Office Action cites Okada for disclosing allyl isothiocyanate as an antibacterial substance and for teaching the use of allyl isothiocyanate in a food storing package. (Office Action, page 6.)

The food storing package in Okada includes the use of the isothiocyanate acid compound-matrix in which isothiocyanate is entrapped in the matrix by adsorption. (Col. 3, line 64 to col. 4, line 29.) Okada teaches that the use of the isothiocyanate acid compound-matrix provides constant emanation of the isothiocyanate acid. (*See* col. 1, lines 49-53 and col. 3, lines 64-67.)

Thus, if Xiang is modified to include the isothiocyanate ester and food storing packaging material from Okada as alleged by the Office Action, then one of ordinary skill in the art would modify the product of Xiang to include the isothiocyanate acid compound-matrix as taught in Okada. However, as demonstrated in the declaration submitted with the Amendment of November 12, 2008, when the isothiocyanate is adsorbed with the matrix (xanthane gum) as in Okada, the isothiocyanate is released irrespective of humidity. (Declaration, p. 3.)

Thus, the product of Xiang modified by Okada as alleged in the Office Action would not have the humidity-dependent release behavior.

For at least the foregoing reasons, claims 3-5, 7 and 9 are patentable over the cited references. Accordingly, withdrawal of the rejection of claims 3-5 and 7 is hereby solicited.

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In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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